

## NMCP COVID-19 Report: Tuesday, 07 April 2020

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**Disclaimer:** I am not a medical professional.

### Statistics (as of Tuesday 07 April 2020 at 1100)

<i>United States</i>	<i>Virginia</i>
Estimated peak resource use: 15 April 2020 ( <a href="#">UW IHME</a> )	Estimated peak resource use: 20 April 2020 ( <a href="#">UW IHME</a> )
<a href="#">JHU CSSE</a> Confirmed Cases: 368,533 NY: 131,830 NJ: 41,090 MI: 17,221 Total deaths: 11,008 NY: 4,758 NJ: 1,003 MI: 727 Total recovered: 19,972	<a href="#">VA Dept of Health</a> Total cases: 3,333 Chesapeake: 80 Hampton: 43 Newport News: 57 Norfolk: 72 Portsmouth: 36 Suffolk: 30 Virginia Beach: 200 Total hospitalizations: 563 Total deaths: 63
<a href="#">Dept of Veterans Affairs</a> Positive Veteran Cases: 2,866 (as of 06 April 2020)	<a href="#">Dept of Veterans Affairs</a> Hampton VAMC: 18 inpatient, 10 outpatient (as of 06 April 2020)

### Evidence Summaries

#### *Ventilator Use*

[ECRI](#): Single Ventilator Use to Support Multiple Patients (06 April 2020)

"No clinical studies are available on the safety and effectiveness of respiratory support with ventilators shared by two or more patients. In the absence of clinical studies, laboratory and animal studies may at least provide a rationale for action during critical ventilator shortages. Data from four studies using lung surrogates, animals, and healthy humans suggest that sharing a single ventilator appears to be feasible in two to four similar subjects. However, it

is challenging and very risky in actual patients whose disease quickly evolves and who require individual airflow adjustments that clinical operators have limited to no control to adjust during sharing. Furthermore, studies involving animals, artificial lungs, or healthy volunteers may not reflect the dynamic nature of ventilation parameters in patients with severe acute respiratory distress. Also, findings may also not generalize across ventilators with different features. Thus, healthcare providers faced with ventilator shortages should critically prioritize patient selection and continuously monitor feasibility when considering using a single device to support multiple patients.

American medical societies recommend against ventilator sharing because of safety, technical challenges, and ethical concerns, and recommend triage-based ventilator allocation during shortages to patients most likely to benefit and survive."

### **From the Literature (most recent first)**

[JAMA](#): The COVID-19 Pandemic in the US A Clinical Update (06 April 2020)

Brief viewpoint that outlines the state of the pandemic. A recommended read as it covers a lot of major questions in succinct way. A few quotations of note:

"[G]lobal mortality is reported at 4.7% but this varies widely by location from a high of 10.8% in Italy to a low of 0.7% in Germany."

"While the evidence on reinfection is evolving, current data and experience from previous viruses without substantial seasonal mutation do not support this hypothesis [of reinfection]."

"Current evidence suggests that SARS-CoV-2 is primarily transmitted through droplets (particles 5-10  $\mu\text{m}$  in size).... Transmission through aerosols, particles smaller than 5  $\mu\text{m}$ , can also occur under specific circumstances such as endotracheal intubation, bronchoscopy, suctioning, turning the patient to the prone position, or disconnecting the patient from the ventilator. "

[MMWR](#): Coronavirus Disease 2019 in Children — United States, February 12–April 2, 2020 (06 April 2020)

This report focuses on COVID-19 in a pediatric population. The authors note that children might experience symptoms differently compared to adults and have a mild course of the disease. Children may not have a fever or cough (73% in children versus 93% in adults), myalgia, sore throat, headache, and diarrhea were also less common. Children are less likely to be hospitalized, but severe outcomes, including death, are possible. In those children with known exposure, 9% were associated with travel and 91% with exposure to a COVID-19 patient at home or in the community.

[Ann Intern Med](#): Effectiveness of Surgical and Cotton Masks in Blocking SARS–CoV-2: A Controlled Comparison in 4 Patients (06 April 2020)

In this letter, South Korean researchers describe a controlled comparison of disposable surgical masks and reusable cotton masks. The 4 patients included in the study were instructed to cough onto a petri dish while wearing no mask, surgical mask, cotton mask, and again with no mask; mask surfaces were also swabbed and tested. The authors found all outer mask surfaces were positive for SARS-CoV-2, while inner mask surfaces were negative. They conclude: "both surgical and cotton masks seem to be ineffective in preventing the dissemination of SARS–CoV-2 from the coughs of patients with COVID-19 to the environment and external mask surface."

[PNAS](#): Projecting hospital utilization during the COVID-19 outbreaks in the United States (03 April 2020)

"Our projections indicate that COVID-19 will overwhelm hospital capacity in the United States at the peak of the outbreak." The authors note that identification of symptomatic cases combined with self-isolation can dramatically reduce demand for services. Self-isolation was more influential in their projections, but alone it will be insufficient to keep peak intensive care demand below capacity.

[RAND](#): Critical Care Surge Response Strategies for the 2020 COVID-19 Outbreak in the United States (March 2020)

Extensive report that looks at various strategies to create critical care surge capacity and needed staffing. Includes a spreadsheet (Excel)-based tool for decisionmakers to estimate current capacity for critical care.

[Ann Intern Med](#): Use of Hydroxychloroquine and Chloroquine During the COVID-19 Pandemic: What Every Clinician Should Know (31 March 2020)

"Physicians should educate themselves about the strength of available data regarding HCQ [hydroxychloroquine] and CQ [chloroquine] in treating COVID-19. They should avoid misuse of HCQ and CQ for the prophylaxis of COVID-19, because there are absolutely no data to support this."

[TID](#): COVID-19 and smoking: A systematic review of the evidence (20 March 2020)

A systematic review that included 5 studies, this report notes a higher percentage of current and former smokers among patients requiring ICU support and severe cases of COVID-19. The authors note that data are limited, but that "smoking is most likely associated with the negative progression and adverse outcomes of COVID-19."

## **In Brief**

**– based on literature alerts, news reports, social media, and other current awareness sources**

### *PPE*

The CDC has updated their guidance on PPE ([CDC](#)), optimizing N95 supply ([CDC](#)), and information specific for pediatric healthcare providers ([CDC](#)). The CDC has also offered support for making and wearing homemade masks ([CDC](#)).

Project N95 is intended to be a national clearinghouse to get PPE and other necessary materials to frontline healthcare providers ([N95](#)).

### *Ventilators*

The American Association for Respiratory Care has videos and other support for training healthcare workers on different models of ventilators ([AARC](#)).

### *Mental Health*

There are growing concerns for the short- and long-term mental health of healthcare providers related to the COVID-19 pandemic ([RAND](#)).

### *Epidemiology/Infodemiology, Data Visualization, & Tracking*

COVIDView is a new weekly surveillance summary of COVID-19 activity in the U.S. from the CDC ([CDC](#)); the WHO publishes daily situation reports for a global view ([WHO](#)). COVID-Net looks at hospitalizations ([CDC](#)). The CDC is also providing provisional death counts from COVID-19 ([CDC](#)).

The COVID-19 GIS (geographic information system) hub provides mapping of data from a variety of services ([ESRI](#)). [see also [JHU CSSE](#) and [UW IHME](#) from previous reports]

The COVID-19 Policy Tracker covers the U.S. and provides data on state and local government response to the pandemic ([MultiState](#)).

### *Research*

A research knowledge hub has been developed to help communicate tools, support systems, initiatives, gaps, opportunities, and implementation surrounding COVID-19 research ([TGHN](#)).

The COVID-19 Open Research Dataset (CORD-19) is a free, open resource that also links to other resources focused on discovery surrounding the pandemic ([Semantic Scholar](#)).

"Much of the research that emerges in the coming weeks will turn out to be unreliable, even wrong. We'll be OK if we remember that" ([Wired](#)).

## Looking Ahead

Planned for the next report: evidence summary on testing – sensitivity, specificity, seroconversion, and serological antibody testing.

## Future Reports – What Topics?

Topics to consider for future reports:

- ☐ special concerns in pediatric or young adult patients with COVID-19
- ☐ COVID-19 and healthcare disparities (racial, socioeconomic, etc.)
- ☐ bioethics of triage, experimental treatments, and related concerns
- ☐ impact on medical education / changes to residency programs
- ☐ mental health – frontline healthcare providers, patients, general public, demands for service
- ☐ other "social side effects" – increase in domestic violence, child maltreatment, etc.
- ☐ telemedicine/telehealth – best practices, access to care, barriers, etc.
- ☐ short- and long-term effects of COVID-19 disease
- ☐ pandemic intersection with opioid epidemic, addiction, and/or substance use disorder

## References

AARC: American Association for Respiratory Care. Strategic National Stockpile Ventilator Training Program. Link: <https://www.aarc.org/resources/clinical-resources/strategic-national-stockpile-ventilator-training-program/>

Ann Intern Med: Bae S, Kim MC, Kim JY, Cha HH, Lim JS, Jung J, Kim MJ, Oh DK, Lee MK, Choi SH, Sung M, Hong SB, Chung JW, Kim SH. Effectiveness of Surgical and Cotton Masks in Blocking SARS-CoV-2: A Controlled Comparison in 4 Patients. Ann Intern Med. 2020; [Epub ahead of print 6 April 2020]. Link: <https://annals.org/aim/fullarticle/2764367/effectiveness-surgical-cotton-masks-blocking-sars-cov-2-controlled-comparison>

Ann Intern Med: Yazdany J, Kim AHJ. Use of Hydroxychloroquine and Chloroquine During the COVID-19 Pandemic: What Every Clinician Should Know. Ann Intern Med. 2020 Mar 31. doi: 10.7326/M20-1334. [Epub ahead of print] PubMed PMID: 32232419. Link: <https://annals.org/aim/fullarticle/2764199/use-hydroxychloroquine-chloroquine-during-covid-19-pandemic-what-every-clinician>

CDC: Centers for Disease Control and Prevention. COVID-Net Laboratory-Confirmed COVID-19-Associated Hospitalizations (28 March 2020). Link: [https://gis.cdc.gov/grasp/COVIDNet/COVID19\\_3.html](https://gis.cdc.gov/grasp/COVIDNet/COVID19_3.html)

CDC: Centers for Disease Control and Prevention. COVIDView: A Weekly Surveillance Summary of U.S. COVID-19 Activity (last updated 04 April 2020). Link: <https://www.cdc.gov/coronavirus/2019-ncov/covid-data/covidview.html>

CDC: Centers for Disease Control and Prevention. Information for Pediatric Healthcare Providers (03 April 2020). Link: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/pediatric-hcp.html>

CDC: Centers for Disease Control and Prevention. Personal Protective Equipment When Caring for COVID-19 Patients (03 April 2020). Link: [https://www.cdc.gov/coronavirus/2019-ncov/downloads/A\\_FS\\_HCP\\_COVID19\\_PPE.pdf](https://www.cdc.gov/coronavirus/2019-ncov/downloads/A_FS_HCP_COVID19_PPE.pdf)

CDC: Centers for Disease Control and Prevention. Provisional Death Counts for Coronavirus Disease (COVID-19) (06 April 2020). Link: <https://www.cdc.gov/nchs/nvss/vsrr/COVID19/index.htm>

CDC: Centers for Disease Control and Prevention. Strategies for Optimizing the Supply of N95 Respirators (03 April 2020). Link: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/respirators-strategy/index.html>

CDC: Centers for Disease Control and Prevention. Use of Cloth Face Coverings to Help Slow the Spread of COVID-19 (04 April 2020). Link: <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/diy-cloth-face-coverings.html>

ECRI: Single Ventilator Use to Support Multiple Patients. (06 April 2020) Link: [https://assets.ecri.org/PDF/COVID-19-Resource-Center/COVID-19-Clinical-Care/COVID-ECRI\\_HTA\\_Single-Ventilator-Use-Multiple-Patients.pdf](https://assets.ecri.org/PDF/COVID-19-Resource-Center/COVID-19-Clinical-Care/COVID-ECRI_HTA_Single-Ventilator-Use-Multiple-Patients.pdf)

ESRI: COVID-19 GIS hub (updated often). Link: <https://coronavirus-disasterresponse.hub.arcgis.com/>

JHU CSSE: Johns Hopkins Center for Systems Science and Engineering. Coronavirus COVID-19 Global Cases. Link: <https://gisanddata.maps.arcgis.com/apps/opsdashboard/index.html>

MMWR: Centers for Disease Control and Prevention. Coronavirus Disease 2019 in Children — United States, February 12–April 2, 2020 MMWR Morb Mortal Wkly Rep. ePub: 6 April 2020. Link: <https://www.cdc.gov/mmwr/volumes/69/wr/mm6914e4.htm>

MultiState. COVID-19 Policy Tracker. Link: <https://www.multistate.us/pages/covid-19-policy-tracker>

N95: Project N95. Link: <https://www.projectn95.org/>

PNAS: Moghadas SM, Shoukat A, Fitzpatrick MC, Wells CR, Sah P, Pandey A, Sachs JD, Wang Z, Meyers LA, Singer BH, Galvani AP. Projecting hospital utilization during the COVID-19 outbreaks in the United States. Proc Natl Acad Sci U S A. 2020 Apr 3. pii: 202004064. doi:

10.1073/pnas.2004064117. [Epub ahead of print] PubMed PMID: 32245814. Link:

<https://www.pnas.org/content/early/2020/04/02/2004064117>

RAND: Blog – Amidst a Pandemic, a Mental Health Crisis May Be Looming (01 April 2020). Link:

<https://www.rand.org/blog/2020/04/amidst-a-pandemic-a-mental-health-crisis-may-be-looming.html>

RAND: Critical Care Surge Response Strategies for the 2020 COVID-19 Outbreak in the United States (March 2020). Link: [https://www.rand.org/pubs/research\\_reports/RRA164-1.html](https://www.rand.org/pubs/research_reports/RRA164-1.html)

Semantic Scholar: COVID-19 Open Research Dataset (CORD-19) from the Allen Institute for AI (AI2). Link: <https://pages.semanticscholar.org/coronavirus-research>

TGHN: The Global Health Network. COVID-19 Outbreak Research Knowledge Hub. Link:

<https://coronavirus.tghn.org/>

TID: Vardavas CI, Nikitara K. COVID-19 and smoking: A systematic review of the evidence. Tob Induc Dis. 2020 Mar 20;18:20. doi: 10.18332/tid/119324. eCollection 2020. PubMed PMID: 32206052; PubMed Central PMCID: PMC7083240. Link:

<http://www.tobaccoinduceddiseases.org/COVID-19-and-smoking-A-systematic-review-of-the-evidence,119324,0,2.html>

UW: University of Washington, Institute for Health Metrics and Evaluation. COVID-19 projections assuming full social distancing through May 2020 (01 April 2020). Link:

<https://covid19.healthdata.org/>

WHO: World Health Organization. Coronavirus disease (COVID-2019) situation reports (updated daily, started 21 January 2020). Link: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/>

Wired: The Science of This Pandemic Is Moving at Dangerous Speeds (28 March 2020). Link:

<https://www.wired.com/story/the-science-of-this-pandemic-is-moving-at-dangerous-speeds/>

## **Other Curated Resources & Readings**

Novel Coronavirus Resources from TRACIE (Technical Resources, Assistance Center, and Information Exchange) From: Office of the Assistant Secretary for Preparedness and Response [U.S. Department of Health and Human Services] (HHS ASPR). Link:

<https://asprtracie.hhs.gov/COVID-19#covid-19-websites>

- Curated content from a wide range of sources (peer-reviewed and grey lit) and resources organized into topic collections, including: alternate care site; crisis standards of care; emergency department; hospital triage/screening; fatality management; personal protective equipment; and workforce protection/sustainability.